

GREASE ANALYSIS

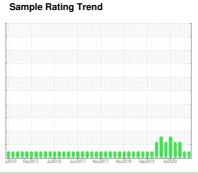
Turret [450245741]

Turret Swivel #5 - 12 (S/N Sample Tag NC-43601)

Component

Grease

PETRO CANADA GREASE OG-1 (--- GAL)





DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Grease Condition

The condition of the grease is acceptable for the time in service.

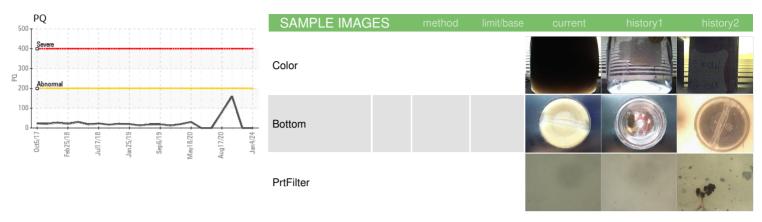
Contaminants

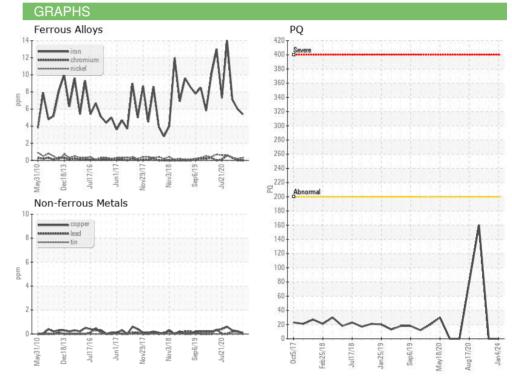
There is no indication of any contamination in the grease.

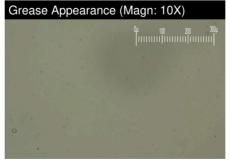
Sample Number Client Info PC PC0052488 PC Sample Date Client Info 04 Jan 2024 08 Oct 2023 17 Sep 2020 Machine Age hrs Client Info 0 0 0 0 0 0 0 0 0	SAMPLE INFOR	ΜΑΤΙΩΜ	method	limit/base	current	history1	history2
Sample Date		MATION		— mm/base			•
Machine Age hrs Client Info 0 0 0 Grease Serviced Client Info 0 0 0 Grease Serviced Client Info N/A N/A N/A Sample Status NORMAL NORMAL ATTENTION CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM DS186(m) >200 0 0 160 Iron ppm ASTM DS185(m) >250 5 6 7 Chromium ppm ASTM DS185(m) >10 0 0 <1	•						
Grease Age hrs Client Info N/A N/A N/A N/A Sample Status Client Info N/A N/A N/A N/A N/A CONTAMINATION method limit/base current history1 history2 Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D5185(m) >20.0 0 0 160 Iron ppm ASTM D5185(m) >20.0 0 0 160 Iron ppm ASTM D5185(m) >25.0 5 6 7 Chromium ppm ASTM D5185(m) >5 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1	•						
Grease Serviced Client Info N/A N/A N/A NORMAL ATTENTION					-		
NORMAL NORMAL ATTENTION CONTAMINATION method limit/base current history1 history2	0	hrs					
Water			Client Info				
Water WC Method >0.1 NEG NEG NEG WEAR METALS method limit/base current history1 history2 PQ ASTM D81844 >200 0 0 160 Iron ppm ASTM D8185(m) >250 5 6 7 Chromium ppm ASTM D8185(m) >10 0 0 <1 Nickel ppm ASTM D8185(m) >5 <1 <1 <1 Cadmium ppm ASTM D8185(m) 0 0 0 0 Vanadium ppm ASTM D8185(m) >25 0 <1 <1 Lead ppm ASTM D8185(m) >5 0 <1 <1 Copper ppm ASTM D8185(m) >5 0 <1 <1 Tin ppm ASTM D8185(m) >5 0 <1 <1 ADDITIVES method limit/base current history1 history2	•				NORMAL	NORMAL	ATTENTION
WEAR METALS method limit/base current history1 history2 PQ ASTM D8184* >200 0 0 160 Iron ppm ASTM D5185(m) >250 5 6 7 Chromium ppm ASTM D5185(m) >10 0 0 <1 Nickel ppm ASTM D5185(m) >5 <1 <1 <1 Cadmium ppm ASTM D5185(m) 0 0 0 <1 Titanium ppm ASTM D5185(m) 0 0 0 0 Vanadium ppm ASTM D5185(m) >25 0 <1 <1 Lead ppm ASTM D5185(m) >5 0 <1 <1 Copper ppm ASTM D5185(m) >5 0 <1 <1 Tin ppm ASTM D5185(m) >5 0 <1 <1 ADDITIVES method limit/base current history1 his	CONTAMINAT	ION	method	limit/base	current	history1	history2
PQ ASTM D8184* >200 0 0 160 Iron ppm ASTM D5185(m) >250 5 6 7 Chromium ppm ASTM D5185(m) >10 0 0 <1	Water		WC Method	>0.1	NEG	NEG	NEG
Iron	WEAR METAL	.S	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185(m) >10 0 0 <1	PQ		ASTM D8184*	>200	0	0	160
Nickel	Iron	ppm	ASTM D5185(m)	>250	5	6	7
Cadmium ppm ASTM D5185(m) 0 0 <1 Titanium ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) >25 0 <1	Chromium	ppm	ASTM D5185(m)	>10	0	0	<1
Titanium ppm ASTM D5185(m) 0 0 0 Vanadium ppm ASTM D5185(m) 0 0 0 Lead ppm ASTM D5185(m) >25 0 <1 <1 Copper ppm ASTM D5185(m) >75 <1 <1 <1 Tin ppm ASTM D5185(m) >5 0 0 0 Silver ppm ASTM D5185(m) >5 0 <1 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 5 0 <1 <1 Magnesium ppm ASTM D5185(m) 6 5 <1 Manganese ppm ASTM D5185(m) 0 0 <1 Molybdenum ppm ASTM D5185(m) 3 11 ▲ 56 <1 Zinc ppm ASTM D5185(m) 9 11 58 <th>Nickel</th> <th>ppm</th> <th>ASTM D5185(m)</th> <th>>5</th> <th><1</th> <th><1</th> <th><1</th>	Nickel	ppm	ASTM D5185(m)	>5	<1	<1	<1
Vanadium ppm ASTM D5185(m) 0 0 0 Lead ppm ASTM D5185(m) >25 0 <1 <1 Copper ppm ASTM D5185(m) >75 <1 <1 <1 Tin ppm ASTM D5185(m) >5 0 0 0 Silver ppm ASTM D5185(m) >5 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 155 169 ▲ 2 Magnesium ppm ASTM D5185(m) 6 5 <1 Manganese ppm ASTM D5185(m) 0 0 <1 Molybdenum ppm ASTM D5185(m) 0 0 <2 Phosphorus ppm ASTM D5185(m) 3 11 5 Zinc ppm ASTM D5185(m) 9 11 5 Antimony ppm ASTM D5185(m)	Cadmium	ppm	ASTM D5185(m)		0	0	<1
Lead ppm ASTM D5185(m) >25 0 <1	Titanium	ppm	ASTM D5185(m)		0	0	0
Copper ppm ASTM D5185(m) >75 <1	Vanadium	ppm	ASTM D5185(m)		0	0	0
Tin ppm ASTM D5185(m) >5 0 0 0 Silver ppm ASTM D5185(m) >5 0 <1	Lead	ppm	ASTM D5185(m)	>25	0	<1	<1
Silver ppm ASTM D5185(m) >5 0 <1	Copper	ppm	ASTM D5185(m)	>75	<1	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 155 169 ▲ 2 Magnesium ppm ASTM D5185(m) 0 0 <1	Tin	ppm	ASTM D5185(m)	>5	0	0	0
Boron	Silver	ppm	ASTM D5185(m)	>5	0	<1	<1
Magnesium ppm ASTM D5185(m) 6 5 <1	ADDITIVES		method	limit/base	current	history1	history2
Manganese ppm ASTM D5185(m) 0 0 <1	Boron	ppm	ASTM D5185(m)		155	169	2
Molybdenum ppm ASTM D5185(m) 0 0 2 Phosphorus ppm ASTM D5185(m) 3 11 ▲ 56 Zinc ppm ASTM D5185(m) 9 11 58 Antimony ppm ASTM D5185(m) <1 0 108 THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 2 0 Barium ppm ASTM D5185(m) 0 <1 2 Calcium ppm ASTM D5185(m) 3841 4059 ▲ 71 Sodium ppm ASTM D5185(m) 3 4 5 Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1	Magnesium	ppm	ASTM D5185(m)		6	5	<1
Phosphorus ppm ASTM D5185(m) 3 11 ▲ 56 Zinc ppm ASTM D5185(m) 9 11 58 Antimony ppm ASTM D5185(m) <1 0 108 THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 2 0 Barium ppm ASTM D5185(m) 0 <1 2 Calcium ppm ASTM D5185(m) 3841 4059 ▲ 71 Sodium ppm ASTM D5185(m) 3 4 5 Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1<	Manganese	ppm	ASTM D5185(m)		0	0	<1
Zinc ppm ASTM D5185(m) 9 11 58 Antimony ppm ASTM D5185(m) <1	Molybdenum	ppm	ASTM D5185(m)		0	0	2
Antimony ppm ASTM D5185(m) <1	Phosphorus	ppm	ASTM D5185(m)		3	11	5 6
THICKENER/SOAP method limit/base current history1 history2 Aluminum ppm ASTM D5185(m) 2 2 0 Barium ppm ASTM D5185(m) 0 <1 2 Calcium ppm ASTM D5185(m) 3841 4059 ▲ 71 Sodium ppm ASTM D5185(m) 3 4 5 Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* <	Zinc	ppm	ASTM D5185(m)		9	11	58
Aluminum ppm ASTM D5185(m) 2 2 0 Barium ppm ASTM D5185(m) 0 <1	Antimony	ppm	ASTM D5185(m)		<1	0	108
Barium ppm ASTM D5185(m) 0 <1	THICKENER/S	OAP	method	limit/base	current	history1	history2
Calcium ppm ASTM D5185(m) 3841 4059 ▲ 71 Sodium ppm ASTM D5185(m) 3 4 5 Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Short fiber	Aluminum	ppm	ASTM D5185(m)		2	2	0
Sodium ppm ASTM D5185(m) 3 4 5 Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Barium	ppm	ASTM D5185(m)		0	<1	2
Lithium ppm ASTM D5185(m) 11 14 201 Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Calcium	ppm	ASTM D5185(m)		3841	4059	▲ 71
Sulfur ppm ASTM D5185(m) 784 781 663 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Sodium	ppm	ASTM D5185(m)		3	4	5
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185(m) >150 29 20 <1 Potassium ppm ASTM D5185(m) 3 2 <1 GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Lithium	ppm	ASTM D5185(m)		11	14	201
Silicon ppm ASTM D5185(m) >150 29 20 <1	Sulfur	ppm	ASTM D5185(m)		784	781	663
Potassium ppm ASTM D5185(m) 3 2 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
GREASE CONDITION method limit/base current history1 history2 Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Silicon	ppm	ASTM D5185(m)	>150	29	20	<1
Grease Color Visual* Tan Beige Cream Gold Texture In-house* Buttery Buttery Buttery Short fiber	Potassium	ppm	ASTM D5185(m)		3	2	<1
Texture In-house* Buttery Buttery Buttery Short fiber	GREASE CON	DITION	method	limit/base	current	history1	history2
Texture In-house* Buttery Buttery Buttery Short fiber	Grease Color		Visual*	Tan	Beige	Cream	Gold
	Texture					Buttery	Short fiber
		NLGI Scale			_		



GREASE ANALYSIS









CALA ISO 17025:2017 Accredited Laboratory

Laboratory Sample No. Lab Number Unique Number : 5710674

: WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 : PC : 02609588

Recieved : 17 Jan 2024 Diagnosed

: 19 Jan 2024 Diagnostician : Bill Quesnel

Test Package : GRS 1 (Additional Tests: BottomAnalysis) To discuss this sample report, contact Customer Service at 1-800-268-2131.

Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab. Validity of results and interpretation are based on the sample and information as supplied.

Suncor - Terra Nova Projects

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